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Washington, D.C. 20554

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November 26, 1999

Magalie Roman Salas
Secretary
Federal Communications Commission
445 12th Street, SW
Washington, DC 20554

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ORIGINAL

Dear Madam Secretary:

Herewith is a letter to the Chairman which constitutes the second quarterly report of the Public Safety National Coordination Committee. Because the letter deals in part with matters currently under consideration in the referenced rule making docket, it is appropriate that the letter be associated with that docket as an *ex parte* submission.

Respectfully submitted,

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cc: WTB-2

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November 26, 1999

Hon. William E. Kennard
Chairman, Federal Communications Commission
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Dear Mr. Chairman:

This letter constitutes the National Coordination Committee's second quarterly report to the FCC as required by Paragraph C of the NCC Charter. As provided in that paragraph, this letter is an update to the NCC's *First Report to the FCC* submitted on August 25, 1999 (First Report).

Since the submission of the *First Report,* the NCC's activities have been centered on three major areas: (1) development of recommendations on whether or not the Commission should require trunking on the channels that the Commission reserved for interoperable communications in the *First Report and Order and Third Notice of Proposed Rulemaking*;[1] (2) development of recommendations on what technical standards to adopt in advance of the Commission's issuance of final rules for the interoperability spectrum; and (3) participation in the rule making proceeding, *Service Rules for the 746-764 and 776-794 MHz Bands, and Revisions to Part 27 of the Commission's Rules.*[2] NCC recommendations on the first two areas, above, are due to the Commission on February 25, 2000.

The NCC is on or ahead of schedule relative to the milestones and plan of action for items (1) and (2) above contained in the *First Report.*[3] The interoperability and technology subcommittees have reported on trunking recommendations and recommended interim technical standards, respectively, and those reports have been taken under advisement by the NCC steering committee.

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[1] The Development of Operational, Technical and Spectrum Requirements for Meeting Federal, State and Local Public Safety Agency Communication Requirements Through the Year 2010. Establishment of Rules and Requirements for Priority Access Service, WT Docket No. 96-86, *First Report and Order and Third Notice of Proposed Rulemaking,* WT Docket No. 96-86, 14 FCC Rcd. 152 (1998)

[2] Service Rules for the 746-764 and 776-794 MHz Bands, and Revisions to Part 27 of the Commission's Rules, *Notice of Proposed Rulemaking,* WT Docket No. 99-168, FCC 99-97 (rel. June 3, 1999)

[3] *See First Report* at 11-17.

The NCC has held two meetings since submission of the *First Report*. Meetings were held in Lansing, Michigan, on September 23 and 24, and in New York City on November 18 and 19. In each instance, the NCC subcommittees met on the first day of the meeting and on the morning of the second day, followed by a combined general membership meeting and steering committee meeting on the afternoon of the second day. The proceedings were open to all NCC members and the general public. The meetings were conducted with ample opportunity for participation by NCC members and the general public on all issues before the NCC, thereby allowing the expression of a diversity of views on each issue.

The greater part of the preparatory work of the NCC, not involving substantive decisions, has been conducted outside of the formal meetings. Extensive use has been made of Internet "list servers." In using such list servers, NCC members post messages to a given Internet address. The messages then are automatically sent, via e-mail, to each person who has subscribed to the list server. The persons to whom the messages are sent may then initiate reply messages. Thereby, NCC members are able to exchange views, usually arriving at a consensus position on a given issue. List servers have been set up for each NCC subcommittee and for each subcommittee working group. The NCC has also made extensive use of telephone "conference bridges." The conference bridge allows a relatively large number of persons to participate in an "electronic meeting" via telephone. The conference bridge has been used most extensively by the steering committee with frequent participation by NCC subcommittee chairs who advise the steering committee of the progress of their work and receive the steering committee's guidance on particular aspects thereof.

As noted above, the reports of the interoperability and technology subcommittees on matters related to the recommendations that the NCC must tender to the Commission by February 25, 2000, have not yet been evaluated by the steering committee. In the case of the technology subcommittee, a written report of its recommendations has yet to be submitted. However, we believe it would be useful to share the substance of those recommendations with the Commission as an illustration of the subcommittees' work and as an indication of the direction of the NCC's deliberations.

The interoperability subcommittee has recommended that trunking not be required on the interoperability channels.[4] Notwithstanding the benefits that may be realized from trunking under many circumstances, the interoperability subcommittee is of the opinion that use of trunking in the typical interoperability scenario would be counterproductive because it would impede timely access to the system by a user who is not registered on the system or is employing an incompatible trunking protocol. For example, a police or fire vehicle responding to a request for aid from outside its home

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[4] Trunking of channels improves spectrum efficiency and reduces system costs. It is accomplished by having a computer evaluate electronic requests for service from portable or mobile units that then are assigned a base station channel, generally on a "first come, first served" basis, according to the priority of the various user groups ("talkgroups") seeking channel access.

area likely has an immediate need for communication as it approaches the site of the emergency in the other jurisdiction. Even if both jurisdictions employ the same trunking protocol on the interoperability channels, the radio of the outside responding police or fire vehicle must be registered on the new system, a typically manual process that can introduce significant delay in the context of an emergency situation. More seriously, if the jurisdiction to which a vehicle is responding employs a trunking protocol different than that used in the vehicle radio, communication will not be possible at all. Accordingly, the interoperability subcommittee is recommending not only that trunking not be required on interoperability channels, but that it be prohibited except in defined circumstances.

As an initial matter, the subcommittee recommends that trunking not be allowed under any circumstances on two recommended 700 MHz National Calling Channels and on 20 recommended service-specific interoperability channels that would be reserved strictly for conventional (*i.e.* non-trunked) use. The other 10 interoperability channels could be used on a trunked basis for all types of interoperability and day-to-day communications. However, any agency operating a trunked base station on any of these 10 channels would be required to monitor the appropriate recommended 700 MHz National Calling Channel(s). Additionally, licensees of trunked interoperability channels would be required to: (a) maintain a control facility manned on a 24 hour per day 7 day per week basis; and (b) have the ability to immediately return trunked interoperability channels to conventional use when notified of such a need. A 4-level priority system has been proposed for all types of interoperability and day-to-day communications on interoperability channels. The interoperability subcommittee has recommended that notification of the need for priority communications on any of the interoperability channels – including the need to return trunked channels to conventional use – should take place on one of the 2 proposed conventional 700 MHz National Calling Channels.

The technology subcommittee has made verbal recommendations concerning technical standards for narrowband voice channels. These recommendations were developed over several months through the subcommittee work groups' participation in list server exchanges, conference calls and deliberations of the full subcommittee at the NCC meetings. These electronic and in-person communications resulted in derivation of a decision "matrix" consisting of 9 questions related to the advantages and disadvantages of the two extant standards for communications facilities of the kind under consideration: the United States ANSI-102 standard[5] and the TETRA standard developed in Europe.[6] ANSI-102, a frequency division multiple access (FDMA) system describes two modes of operation: one in which a voice path occupies a 12.5 kHz channel; another in which a

[5] The full nomenclature is ANSI/TIA/EIA 102.BAAA Project 25 FDMA Common Air Interface. The subcommittee also recommended the ANSI vocoder standard, ANSI/TIA/EIA 102.BABA Project 25 Vocoder Description. Together, these standards are identical to those developed by the Project 25 group and are also known as the Project 25 Phase I standard. ANSI – the American National Standards Institute – is a private sector company that *inter alia* accredits standards developers and approves national standards.

[6] TETRA is the acronym for Trans European Trunked Radio. The TETRA standard was developed under the auspices of the European Telecommunications Standards Institute (ETSI) a European functional counterpart of ANSI.

voice path occupies a 6.25 kHz channel.[7] TETRA, a time division multiple access (TDMA) system, is capable of delivering four voice paths within a 25 kHz bandwidth, *i.e.* it uses four contiguous 6.25 kHz channels to produce 4 voice paths. The technology subcommittee work group considered recommending both the ANSI-102 and TETRA standards. This would allow jurisdictions to elect a given standard but with provisions for "cross patching" or creating a "gateway" that would allow radios operating in accordance with the alternate standard to inter-communicate. However, in responding to the "matrix" questions, members of the subcommittee noted that there are inherent difficulties in translation from one standard to another. The prime difficulty stems from the fact that the ANSI-102 and TETRA systems use different vocoders – the device that converts voice into a digital bit stream. If inter-system translation were used, there would be a loss in voice intelligibility in the translation process. Moreover, if the signal involved were encrypted, it would have to be converted to plain language ("decrypted") as part of the translation process, which could seriously compromise security of communications. Additionally, even with cross-patching the facility would not exist for direct unit-to-unit communication and infrastructure would have to be provided to support each standard in the operational area where interoperability was required.

In response to the foregoing limitations, the TETRA MoU Association[8] has submitted a proposal to the Project 25 steering committee in which they propose including the "Project 25, Phase I" mode of operation within the TETRA radio as a second operational mode. Thereby, a radio operating on the general use channels in accordance with the TETRA standard would be capable of supporting the Project 25, Phase I mode of operation on the interoperability channels. Ericsson, Inc. has made a similar proposal for a system that would realize two voice paths within a 12.5 kHz channel, a "two-slot" TDMA system. Ericsson proposes that this system be developed into a standard.

The technology subcommittee members also noted in the "matrix" responses that implementation of the TETRA "four slot" TDMA system would require the use of 4 contiguous 6.25 kHz channels. However, under the current band plan in the FCC rules, 4 contiguous channels are not available in interoperability spectrum and would require careful planning even in the general use spectrum.[9] Further, the subcommittee members observed that neither TETRA nor its proposed variant comply with the Commission's requirement "that any standard recommended to the Commission by the NCC must be

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[7] Although the ANSI-102 standard also makes provision for a one voice path per 6.25 kHz channel width mode of operation, the subcommittee rejected that option because of estimates that equipment operating in that mode may not be available for approximately 5 years. Moreover it is claimed that technical characteristics inherent in the 6.25 kHz mode of operation would result in limited battery life and additional cost. Equipment conforming to the ANSI-102 12.5 kHz mode of operation is on the market and has been deployed in several systems, albeit not in the 700 MHz public safety band.

[8] The TETRA Memorandum of Understanding (MoU) Association was established in December 1994 to create a forum which could act on behalf of all TETRA interested parties.

[9] The NCC, by its chair, filed an *ex parte* submission with the Commission in the Docket 96-86 reconsideration proceeding suggesting that the FCC's band plan be modified to make groups of 4 contiguous 6.25 kHz channels available in the interoperability spectrum.

developed under an 'open process governed by ANSI or standards approved by ANSI'"[10] Additionally, certain members of the technology subcommittee noted that handheld TETRA radios are less powerful than their Project 25 counterparts – all other things being equal – and thus are believed to have less range when operated in the conventional mode and to require more elaborate infrastructure to function in a trunked mode.

At the NCC meeting in New York City on November 18 and 19, each of the "matrix" questions was discussed in the technology subcommittee meeting and the matrix was again discussed following the technology subcommittee's report to the general membership and the steering committee. It was the consensus of those present that the ANSI-102 12.5 kHz interoperability standard should be adopted to allow public safety licensees to make use of the 700 MHz public safety spectrum until final rules are developed.[11] Moreover, it was the consensus of those present that the ANSI-102 12.5 kHz standard should be adopted immediately by the NCC and recommended to the FCC for incorporation into its final rules governing the 700 MHz public safety spectrum.[12] A recommendation in that regard by the NCC was believed preferable to adoption of an interim standard followed much later by a final standard. The consensus view was that if only an interim standard were adopted now – and the final standard delayed – manufacturers would be unlikely to commence product development on radios that could be rendered obsolete by adoption of a final standard that materially differed from the interim standard.

The TETRA standard or its variant were not accepted as an interoperability standard because, *inter alia,* those standards were not developed through an ANSI process, as the Commission requires,[13] and because the standards were not compatible with the Commission's band plan. In a "straw poll" held at the November 19 meeting to assess the degree of consensus reached, two parties abstained from concurrence in the foregoing recommendations; one party objected.

The interoperability subcommittee has submitted a report from its rules and policies working group on the subject of channel designation and priorities for the voice

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[10] The Development of Operational, Technical and Spectrum Requirements for Meeting Federal, State and Local Public Safety Agency Communication Requirements Through the Year 2010. Establishment of Rules and Requirements for Priority Access Service, WT Docket No. 96-86, FCC 99-85, *Memorandum Opinion and Order on Reconsideration* (rel. May 4, 1999) (Reconsideration MO&O) at ¶ 12. The TETRA standard was developed by ETSI, whose processes, although similar to those of ANSI, are not governed by ANSI. Furthermore, although there is an agreement between ETSI and ANSI for exchange of documents, there is no reciprocity agreement whereby ANSI automatically accredits an ETSI standard or vice-versa.

[11] *See* NCC Charter ¶ B(4).

[12] The NCC Charter contemplates the NCC making two technical standard recommendations. A recommendation on technical standards to be used until the development of final rules must be made within one year of the date of the Charter, *i.e.* February 25, 2000. A recommendation on technical standards for incorporation into the final rules must be made "no later than September 28, 2002." Because the "no later than September 28, 2002" language clearly contemplates that a recommendation could be made before that date, the NCC may, if it wishes, make the interim and final recommendations at the same time and relate both to a single technical standard.

[13] *See Reconsideration MO&O* at ¶¶ 11-13.

interoperability channels. In brief, the report contains recommendations for priority access to the interoperability channels; the establishment of calling channels that must be operated in the conventional (*i.e.* not trunked) mode; a prohibition against encrypted transmissions on the calling channels; reserved channels for "deployable" equipment; *e.g.* truck-mounted repeater stations that could be transported to the site of an emergency incident; and a standardized nomenclature, nationwide, for channel designations. The report includes a table of interoperability channels designated for specific uses or services, *i.e.* 2 calling channels and 30 tactical channels devoted to emergency medical services, fire services, law enforcement services, general public safety services, other public services and mobile repeater use.

The NCC has also participated in the rule making proceeding *Service Rules for the 746-764 and 776-794 MHz Bands, and Revisions to Part 27 of the Commission's Rules.*[14] In that proceeding the Commission is establishing rules for the spectrum immediately adjacent to 700 MHz public safety spectrum. Unless restrictions are placed on emissions on the band edges of this spectrum (former television channels 60-62 and 65-67) serious interference will be caused to public safety operations. On August 25, 1999, I wrote you stating the NCC's concern about such interference and urging recognition of the need for interference avoidance provisions in the proposed rules. I will be writing again in the near future addressing two proposals that have been put forth for interference avoidance by Motorola and FreeSpace. The NCC remains exceptionally concerned about the interference potential of high-power, uncoordinated services operating in this adjacent spectrum.

This concludes this quarterly update to the *First Report.* I noted in my letter accompanying the *First Report* that the NCC was a work in progress. It remains so and I have confidence that the progress to date is an firm indication that the NCC will meet its deadline for its first scheduled deliverables in February, 2000.

Respectfully submitted,

/s/ Kathleen M.H. Wallman

Kathleen M. H. Wallman
Chair
Public Safety National
Coordination Committee

Cc: The Honorable Susan Ness
The Honorable Harold Furchtgott-Roth
The Honorable Michael Powell
The Honorable Gloria Tristani
Magalie Roman Salas, Secretary

[14] *See* n. 2 *supra.*